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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,771

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Edoardo Campini

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01/23/2006

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EXAMINER

DATSKOVSKIY, MICHAEL V

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/748,771

Applicant(s)

CAMPINI ET AL.

Examiner

Michael V. Datskovskiy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/14/04; 09/22/05.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities: In line 2 the word: "couple" should be changed to the word: "coupled" . Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: According to the parent claims 1 and 8 the heat generating component is attached to the first side of the carrier substrate, and not to the second side as claimed in claim 12.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-3, 7-12 (claim 12 as understood by examiner), and 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Hitoshi (Japan Patent JP02003258467A, provided by the applicant in the IDS)

Hitoshi teaches a thermal management apparatus, Figs. 1-2, comprising: a carrier substrate 1 having a first side and an opposite second side and an opening extending from the first side to the second side; and a thermal conductor 12 dimensioned to fit in the opening to facilitate transfer of heat generated by an electronic component 2 attached to the first side for dissipation at the second side. Hitoshi teaches furthermore said apparatus further comprising a first heat dissipation device 5 coupled to the electronic component 2 and the thermal conductor 12, said first heat dissipation device 5 is configured to transfer heat generated by the electronic component 2 to the thermal conductor 12, wherein said first heat dissipation device is a heat spreader. Hitoshi teaches furthermore said apparatus, wherein the thermal conductors 12 are solid core conductors. Hitoshi teaches furthermore said apparatus further comprises a second heat dissipation device 11 disposed on the second side and thermally coupled to the one or more thermal conductors 12 to dissipate said heat transferred away from the component 2 disposed on the first side, said second heat dissipation device is configured to transfer heat to a surrounding environment (e.g. cooled by air). Hitoshi teaches furthermore said apparatus, wherein the second heat dissipation device 11 is removably coupled to the thermal conductors 12 by fasteners 6, which retain the first heat dissipation device 5 against the first side component 2. Regarding to the claims 25-27: The method steps are necessitated by the device structure as Hitoshi discloses it.

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7. Claims 1, 7, 13, 19 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamaji et al (US Patent 5,262,922).

Yamaji et al teach a thermal management apparatus (modular platform), Figs. 1-9, comprising: a carrier substrate 1 having a first side and an opposite second side; an opening 1a extending from the first side to the second side; and a thermal conductor 3 dimensioned to fit in the opening 1a to facilitate transfer of heat generated by an electronic component 2 attached to the first side for dissipation at the second side.

Yamaji et al teach furthermore: A modular platform, comprising the thermal management apparatus, the thermal management apparatus comprising a shelf (see col.1, line 11 through col. 2, line 56); a plurality of modular platform boards 1, at least one of the boards including a carrier substrate 1 having a first side and an opposite second side and an opening 1a extending from the first side to the second side; a thermal conductor 3 dimensioned to fit in the opening to facilitate transfer of heat generated by an electronic component 2 attached to the first side for dissipation at the second side, wherein said thermal conductor is a solid core conductor. Regarding to the claim 25: The method steps are necessitated by the device structure as Yamaji et al disclose it.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitoshi.

Hitoshi teaches all the limitations of the claims except: The thermal management apparatus of claim 2, wherein the carrier substrate is at least pad compliant with a standard and the aggregate thickness of the component and the first heat dissipation device is within a dimension requirement of the standard (claim 4); The thermal management apparatus of claim 4, wherein the standard is PICMG 3.0 ATCA, and the dimension requirement is 4.66mm (claim 5); and the thermal management apparatus of claim 5, wherein first side is covered with a nonconductive material and the aggregate thickness of the nonconductive material, the component, and the first heat dissipation device is less than or equal to 4.66 mm (claim 6). Official Notice is taken that it is well known in the art to cover (or to make) circuit boards with electrically non-conductive layers. Regarding to specific sizes requirements: It would have been obvious matter of design choice to choose specific sizes of the apparatus of its specific parts, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

10. Claims 14-18, 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaji et al in view of Hitoshi.

Yamaji et al teach all the limitations of the claims except said apparatus (modular platform) comprises a second heat dissipating device provided on the second side of the substrate, said second heat dissipating device being thermally connected by said

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thermal conductor with the first heat dissipating device coupled to the heat generating component on the first side of the substrate. Hitoshi teaches such a cooling arrangement (see rejection above). It would have been obvious to one ordinary skilled in the art at the time invention was made to employ a cooling arrangement described by Hitoshi in the device by Yamaji et al in order to further decrease height of the apparatus (which is actually the main goal of the device by Yamaji et al).

11. The prior art made of record provided in the PTO Form 892 and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Datskovskiy whose telephone number is (571) 272-2040. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


01/19/06

Michael V Datskovskiy

**MICHAEL DATSKOVSKIY
PRIMARY EXAMINER**